

UW-MADISON AWS 2021-2022 FIELD SEASON: A RETURN TO THE ICE

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1. OVERVIEW

Since 1980, the University of Wisconsin-Madison (UW-Madison) has managed an Automatic Weather Station (AWS) network (Fig. 1), currently consisting of 58 AWS (Lazzara et al. 2012). The University of Wisconsin-Madison (UW-Madison) Automatic Weather Station (AWS) program conducted much-needed network maintenance during its 2021-22 field season in Antarctica, deploying Dave Mikolajczyk and Lee Welhouse. While work was accomplished out of McMurdo and in the Ross Ice Shelf region, planned network maintenance in West Antarctica was canceled due to logistical conflicts.

From McMurdo, there were several important site visits completed, while some work was still left unfinished. The riggers visited Alexander Tall Tower! to inspect the guy wires and tower stability, but the AWS team was unable to visit to raise the power system and instrumentation with the riggers. In the McMurdo region, Minna Bluff, Windless Bight, Cape Bird, White Island, Willie Field, and Phoenix were serviced. Minna Bluff and White Island have failing wind instruments, and Phoenix is not currently transmitting. Sarah, the Polar Climate and Weather Station (PCWS) collocated at Willie Field, was serviced.

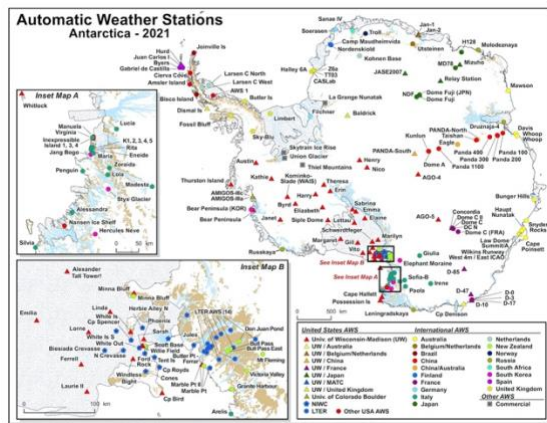


Figure 1. All known Antarctic AWS, as of 2021.

2. MCMURDO AWS NETWORK



Figure 2. The three stations collocated at Schwertfeger: Skomik PCWS (left), Schwertfeger (center), and NIWC AWS (right).

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On the Ross Ice Shelf, Emilia, Elaine, Marilyn, and Schwerdtfeger were serviced, along with the installation of Skomik PCWS collocated at Schwerdtfeger (Fig. 2). The latter three AWS also have collocated Naval Information Warfare Center (NIWC) AWS, which were serviced by their personnel.

3. IMPACT ON WEST ANTARCTIC AWS

Due to scheduling conflicts and delays, the West Antarctic field work was canceled a couple weeks after Dave and Lee arrived on the ice. This has dire consequences on the recovery of Austin and Kathie, which both are in high accumulation zones, needed to be raised, and are not currently transmitting. Three other AWS were unable to be serviced: Bear Peninsula, Thurston Island, and Kominko-Slade.

4. NEW COMPUTER SERVER IN MCMURDO

The team installed a new computer in McMurdo, amrdc2, which is part of the Antarctic Meteorological Research and Data Center (AMRDC) project (for more information, see Matthew Lazzara's presentation about the AMRDC in this program). This server is an upgrade and will replace two existing servers in McMurdo, herbie and emperor. Processing is set up to decode real-time AWS data from the Metop polar-orbiting satellites. It also will provide additional satellite imagery distribution from

McMurdo to UW-Madison and other organizations via the Antarctic-Internet Data Distribution system.

5. UW-MADISON COLLABORATION WITH NIWC

The UW-Madison and NIWC are collaborating on a few projects. One is the collocated AWS, mentioned previously, at a few sites on the Ross Ice Shelf: Elaine, Schwerdtfeger, and Marilyn. Two ongoing projects involve NIWC AWS observational data. One is monthly quality control of the NIWC AWS data, following the same procedure that UW-Madison uses for their AWS network. The other is NIWC AWS/AMPS data validation, involving comparing NIWC AWS observations to AMPS forecast model output.

6. ACKNOWLEDGEMENTS

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6. REFERENCES

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